

REMARKS

Reconsideration of the application, as amended, is respectfully requested.

Claims 1-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman (US Patent No. 6,093,690). Applicants have amended claim 1 to make clearer the structure of the polyanionic ammonium surfactant employed in the present invention. This amendment is supported by pages 3 and 4 of the specification.

Chapman differs from applicants' invention in several important respects. Most significantly, Chapman teaches modified polyamines. Chapman teaches production of modified polyamines starting with unmodified polyamines. Unmodified polyamines are taught up to column 8 to column 10, line 56. Unmodified polyamines are starting reaction products of Chapman. The modified polyamines have units E on the terminal amine moiety. The Examiner has pointed to column 14, lines 17-19 as a teaching that E may be hydrogen. Applicants agree that some E substituents may be hydrogen. In other words, Chapman teaches that not all hydrogen on the terminal nitrogen must be replaced with E units. However, as Chapman teaches modified polyamines: at least some of the hydrogen on the primary amine units are substituted with moiety E. By contrast, in applicants' invention, the primary amines are unmodified; amine terminal units have all $R^1=H$. This is necessary for applicants' invention, since it is unmodified polyamine that is reacted with an acid precursor of a surfactant to obtain PAAS of applicants' invention. Unmodified polyamines are sufficiently alkaline to react with an acid precursor of surfactant. Chapman's modified polyamines (much less alkaline than applicants' modified polyamines) would not react with an acid precursor.

With respect to the teaching at column 7, lines 22-33, Chapman teaches modified polyamine pre-neutralized with a neutralizing agent. The modified polyamine is already neutralized with a strong base, e.g. carbonates, silicates, sodium hydroxide. It is only then that it is reacted with acid precursor—the products that would result would be an unmodified polyamine and sodium salt of acid precursor, i.e. surfactant such as

sodium alkybenzene sulfonate, for instance. The reaction product would not be PAAS surfactant according to applicants' invention, because in applicants' invention, it is unmodified polyamine that is reacted with the acid precursor, and then without being preneutralized with a strong alkaline agents, so that PAAS may be obtained. See e.g. the process in applicants' specification at page 7, lines 16-25.

In Example 5 of Chapman, again, modified polyamine is used, i.e. having ethylene oxide units on terminal amines.

With respect to the teaching of Chapman of spraying on an additional binder in column 8, lines 13-24: this is radically different from applicants' invention. In applicants' invention a liquid binder comprising PAAS is prepared. PAAS by itself is a solid. See applicants' Example 1: PAAS precipitates out of solution (Table 1). Even if Chapman were producing PAAS in his document, which he is not, the teaching of the binder at column 8 is just a spraying on of the binder onto the solid ingredients. At this time in the process it would be too late to prepare liquid containing PAAS. PAAS would already be present as a solid. In applicants' invention, a liquid binder comprising PAAS is formed.

Thus, Chapman neither teaches PAAS, i.e. a molecule obtained from the reaction of unmodified polyamine with an acid precursor of a surfactant, nor teaches any processes where PAAS is formed, nor teaches any compositions containing liquid PAAS binder. In light of the above, it is respectfully requested that the obviousness rejection over Chapman be reconsidered and withdrawn.

Claims 1-5 and 7-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09003483 in view of Maunder et al. (US Patent No. 5,955,057), hereinafter "Maunder".

JP '483 differs from applicant's invention most significantly in that the amended claims recite PAAS structure that is different from the JP '483 structure. JP '483 teaches a molecule that has at most two amine groups whereas applicants' PAAS has

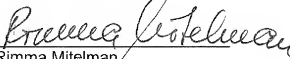
at least three amine groups. It is not seen how one of ordinary skill in the art, who has not had the benefit of hindsight afforded by the present disclosure, would have been led by JP '483 to modify the structure of the molecule to arrive at applicants' invention which employs PAAS that is different from JP '483, in absence of any teaching to modify the molecule. Maunder, cited by the Examiner for its teaching of the acid and base does not remedy the shortcomings of the present invention. Consequently, it is respectfully requested that the rejection over JP '483 in view of Maunder be reconsidered and withdrawn.

With respect to the double-patenting rejection, in light of the availability of Terminal Disclaimer practice, applicants agree to the filing of the Terminal Disclaimer upon an indication of the allowable subject matter.

In light of the above amendments and remarks, it is respectfully requested that the application be allowed to issue.

If a telephone conversation would be of assistance in advancing the prosecution of the present application, applicants' undersigned attorney invites the Examiner to telephone at the number provided.

Respectfully submitted,


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